STORM WATER MANAGEMENT POND CERTIFICATION AND APPROVAL

DEVELOPER'S CERTIFICATE

"I HEREBY CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN AS-BUILT PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF DEVELOPER — DATE 4-13-82

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE MUST PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER — DATE 4-13-82

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

U.S. SOIL CONSERVATION SERVICE — DATE 7/21/82

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 7/22/82

APPROVED:
DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF ENGINEERING — DATE 7-28-82

APPROVED:
OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION — DATE 7-22-82

S.W.M. POND SPECIFICATIONS

I. SITE PREPARATION
Areas under the embankment and structural works shall be cleared, grubbed and the topsoil stripped to remove all trees, vegetation, roots or other objectionable material. To facilitate clean out and restoration, it is recommended that the permanent pool area be cleared of all brush and trees.

II. STRUCTURAL BACKFILL
Backfill material shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall the contractor drive equipment over any part of a concrete structure or pipe unless there is a compacted fill of twenty-four inches or greater over the structure or pipe.

III. PIPE CONDUITS
A. CORRUGATED METAL PIPE
1. Materials - Aluminum Pipe - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211, with watertight coupling bands.
2. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the control structure shall be welded all around. Watertight coupling bands shall be used at all joints. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight.
3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
4. Laying pipe - The pipe shall be placed with inside circumferential laps pointing downstream and with the longitudinal laps at the sides.
5. Backfilling shall conform to structural backfill as shown above.
6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

IV. CONCRETE
Concrete shall meet minimum requirements set forth in Maryland State Highway Administration Specifications for Materials, Highways, Bridges, and Incidental Structures, Article 20.07 (Portland Cement Concrete Mixtures), Mix No. 3.

V. STABILIZATION
All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway and borrow areas shall be stabilized by seeding and applying straw mulch in accordance with Standards and Specifications for Soil Erosion and Sediment Control in Urbanizing Areas immediately after finish grading.

All exposed areas of the embankment and pond shall be stabilized by:

a. Spreading 4" topsoil
b. Working in 1 ton of ground limestone and 1,000 pounds of 10-10-10 fertilizer per acre.
c. Seed with 40 lbs./acre of "Kentucky 31" tall fescue, and 15 lbs./acre of Crownvetch inoculated.
d. Mulch with 1-1/2 tons straw per acre.
e. Tie down mulch with emulsified asphalt @ 348 gallons/acre.

#43

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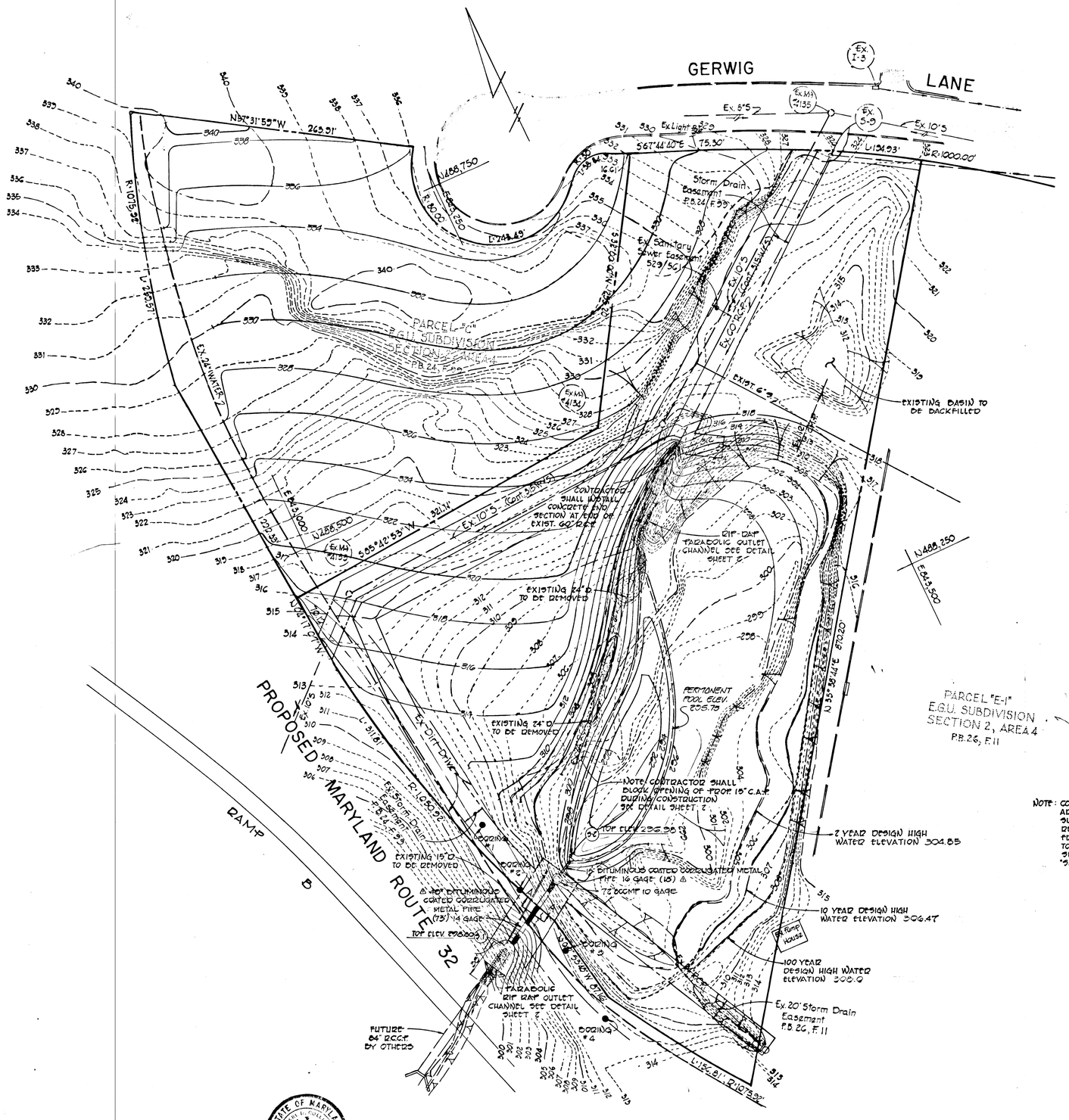
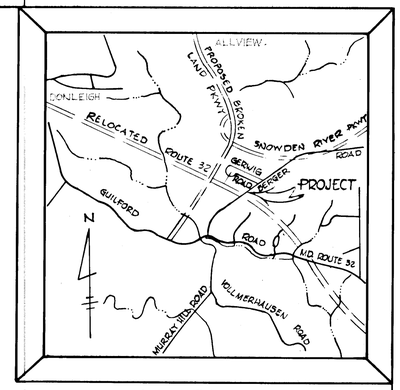
CONSULTING ENGINEERS & LAND SURVEYORS
8388 COURT AVENUE
ELLICOTT CITY, MARYLAND 21043



NOTE: CONTRACTOR SHALL REPAIR ANY ERODED AREAS ALONG THE EXISTING POND SIDE SLOPES, REMOVE DEBRIS WITHIN POND AND REGRADE BOTTOM TO FORM A SMOOTH SLOPE FROM BOTTOM OF PERIMETER SLOPES TO TOP OF GRASSED WATERWAY SLOPES, TOPSOIL, SEED AND MULCH IN ACCORDANCE WITH "SITE PREPARATION NOTES" SHEET 2.



VICINITY MAP
Scale: 1" = ½ mile

STATE OF MARYLAND — EARL F. COLLINS — No. 9153 — REGISTERED PROFESSIONAL ENGINEER

EARL COLLINS — DATE 6/28/82

OWNER AND DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
10275 LITTLE PATUXENT PARKWAY
COLUMBIA, MARYLAND 21044

Rev. Date	Rev. No	Revision Description
8-18-82	Δ	ALUM. PIPE TO BIT. COATED METAL

COLUMBIA
MARYLAND
OWNER AND DEVELOPER
HOWARD RESEARCH AND DEVELOPMENT CORP.

PROJECT AREA: PARCEL D-1, GUILFORD INDUSTRIAL PARK, E.G.U. SUBDIVISION

PROJECT TITLE: STORM WATER MANAGEMENT POND PLAN

Des. By C. CROVO	Scale 1" = 50'	Dwg. No. 1 OF 2
Drn. By A. BOGDAN	Date MARCH 10, 1982	C.C.F. No.
Chk. By R. CARTER	Approved	

F-82-96

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

U.S. SOIL CONSERVATION SERVICE — DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 7/22/82

APPROVED:
DEPARTMENT OF PUBLIC WORKS

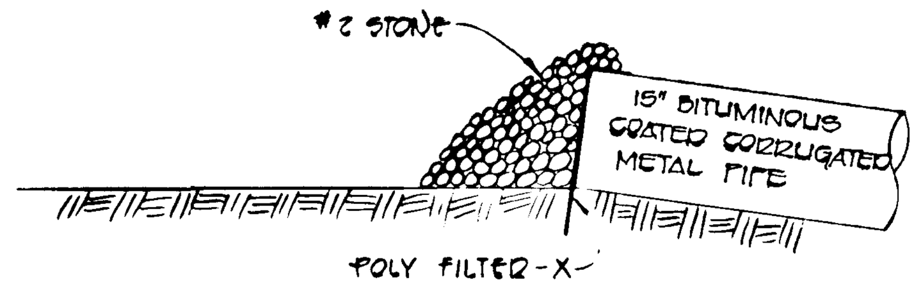
CHIEF, BUREAU OF ENGINEERING — DATE 7-28-82

APPROVED:
OFFICE OF PLANNING AND ZONING

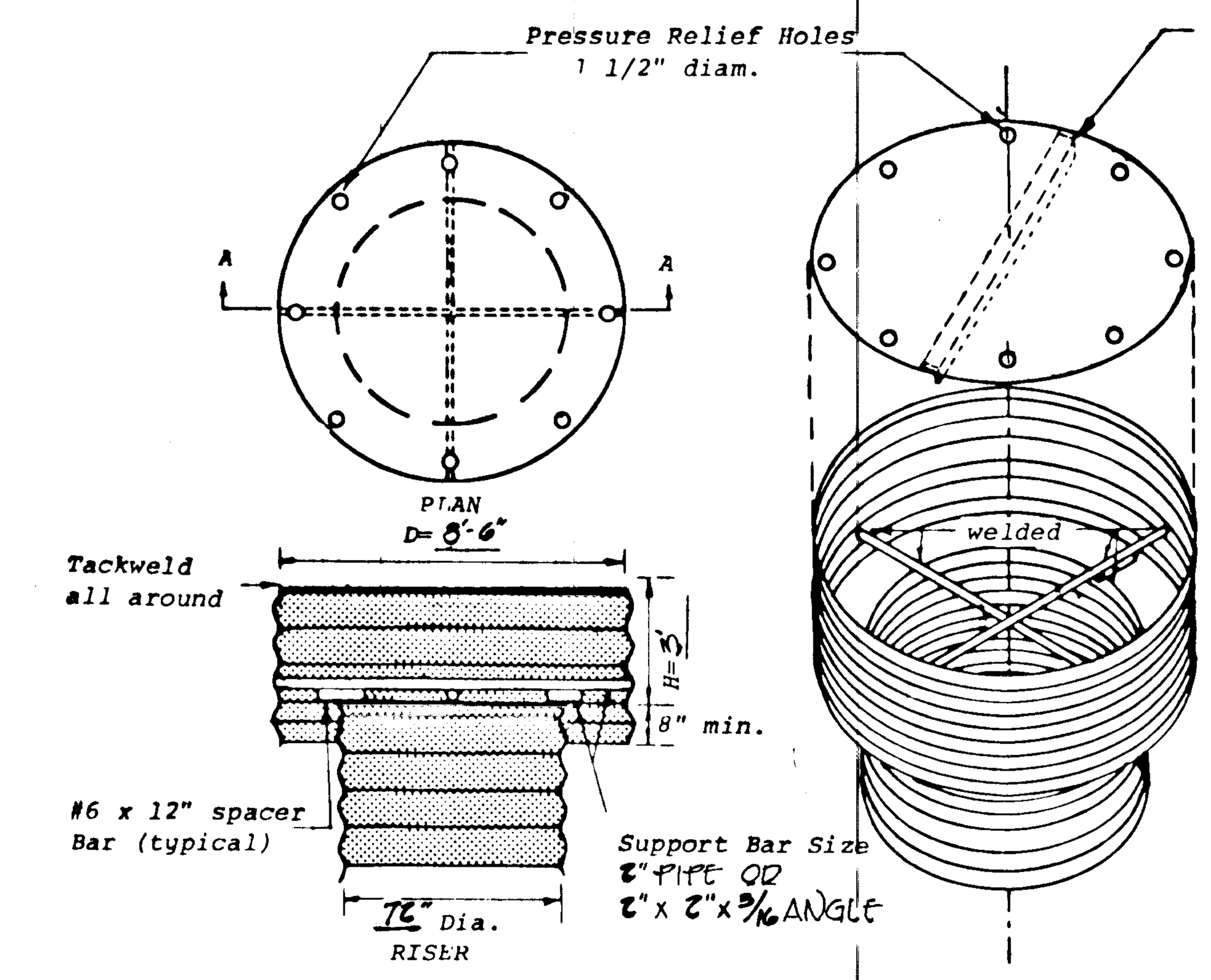
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION — DATE 7-22-82

CONSTRUCTION SEQUENCE

1) INSTALL 15" ORIFICE, RISER PIPE AND SPILLWAY PIPE. CONTRACTOR SHALL BLOCK 15"CMP IN ACCORDANCE WITH DETAIL THIS SHEET.
2) CONSTRUCT PARABOLIC RIP-RAP WATERWAY AND STABILIZE WITH PERMANENT SEEDING.
3) REMOVE EXISTING 24" R.C.P. PIPES.
4) CONTRACTOR SHALL STABILIZE ALL DISTURBED AREAS WITH PERMANENT SEEDING.
5) REMOVE SEDIMENT FROM POND AND USE FOR BACKFILL FOR BASIN AT NORTHEAST PROPERTY CORNER. STABILIZE WITH PERMANENT SEEDING.
6) REMOVE EXISTING 15" PIPE THAT WAS USED FOR FIRE POND OPERATION AND OPEN 15" ORIFICE PIPE.



BLOCKING DETAIL @ 15" C.M.P.
NO SCALE



Top stiffener is 2½ x 2½ x ¼ angle welded to top and oriented perpendicular to corrugations.

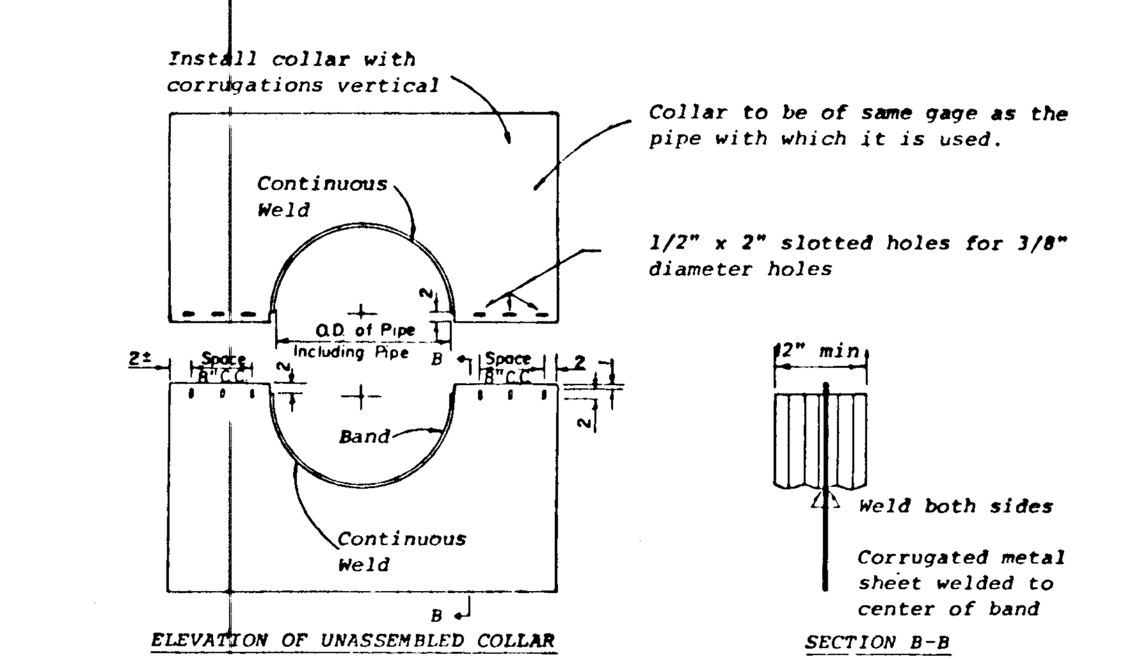
Top is 10 gage corrugated metal or 1/8" steel plate. Pressure relief holes may be ommitted, if ends of corrugations are left fully open when corrugated top is welded to cylinder.

Cylinder is 10 gage corrugated metal pipe or fabricated from 1/8" steel plate.

Notes:
1) The cylinder must be firmly fastened to the top of the riser.
2) Support bars are welded to the top of the riser or attached by straps bolted to top of riser.

CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE
(not to scale)

1. Site Preparation Notes
   A. Harrow or disc in areas proposed to be seeded the following materials
      1) Pulverized limestone at 2 tons/acre.
      2) Commercial fertilizer 10-10-10 at 3/4 tons/acre.
      3) Super phosphate at 600 lbs./acre.
2. Seeding
   A. Sow the following seed mixture at the rate of 200 lbs./acre with a mechanical spreader.
      1) Permanent: 40% Marion Blue Grass, 40% South Dakota Blue Grass and 20% Penn Lawn Creeping Fescue.
   B. The seeded area shall then be raked with a York Rake (a minimum of 2 passes) covered and compacted with Cultipacker or other approved method.
3. Mulching
   A. Seeded areas shall be uniformly mulched immediately after seeding with unweathered small grain straw at the rate of 1 1/2 - 2 tons/acre.
   B. Tie mulch down with liquid asphalt at 0.1 gal./s.y. or emulsified asphalt at 0.04 gal./s.y. or mulch netting.

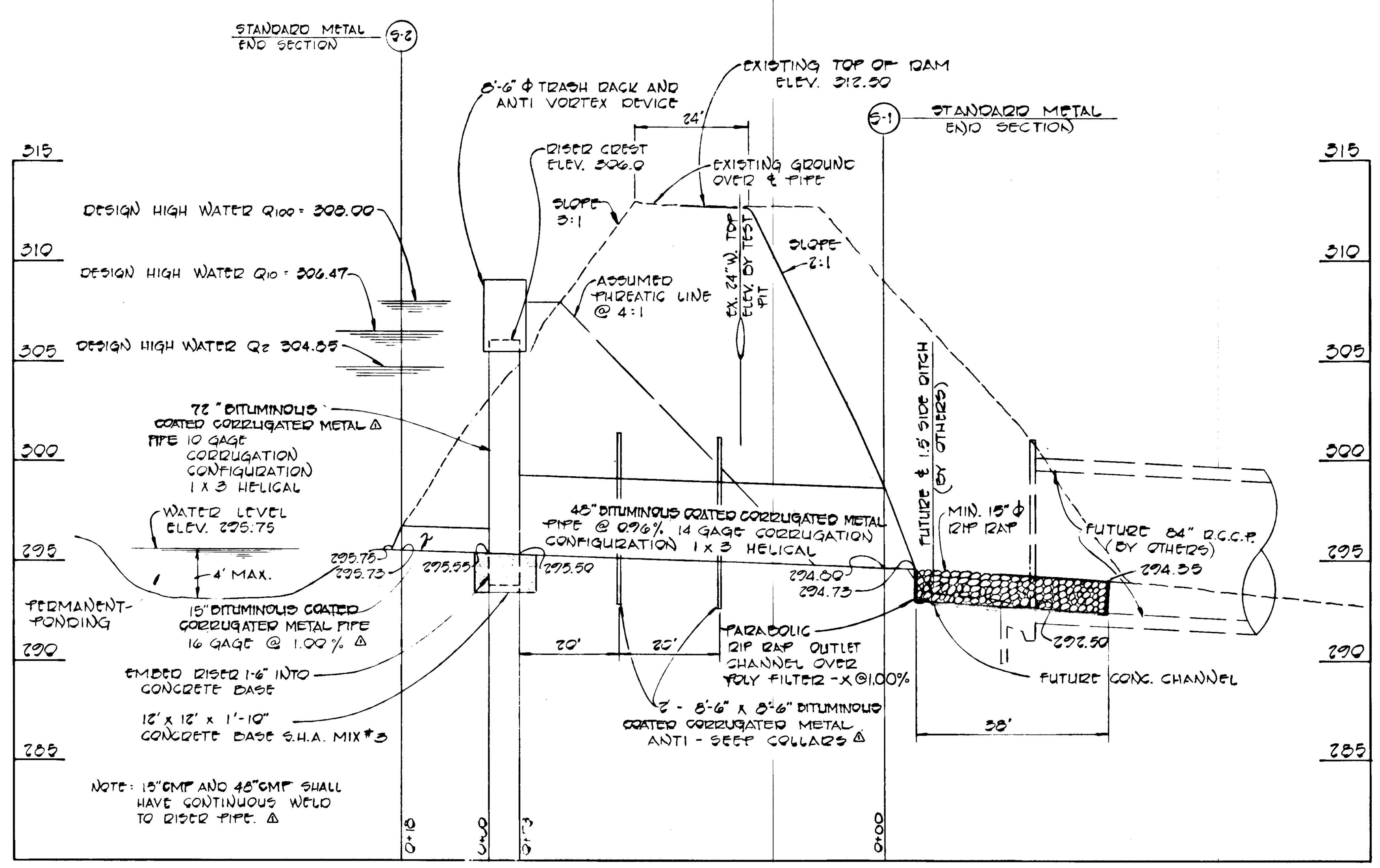


NOTES FOR COLLARS:
1. All materials to be in accordance with construction and construction material specifications.
2. When specified on the plans, coating of collars shall be in accordance with construction and construction material specifications.
3. Unassembled collars shall be marked by painting or tagging to identify matching pairs.
4. The lap between the two half sections and between the pipe and connecting band shall be caulked with asphalt mastic at time of installation.
5. Each collar shall be furnished with two 1/2" diameter rods with standard tank lugs for connecting collars to pipe.

NOTE: ASSEMBLED COLLAR TO BE 8'-6" x 8'-6" SQUARE

CORRUGATED METAL ANTI-SEEP COLLAR DETAIL

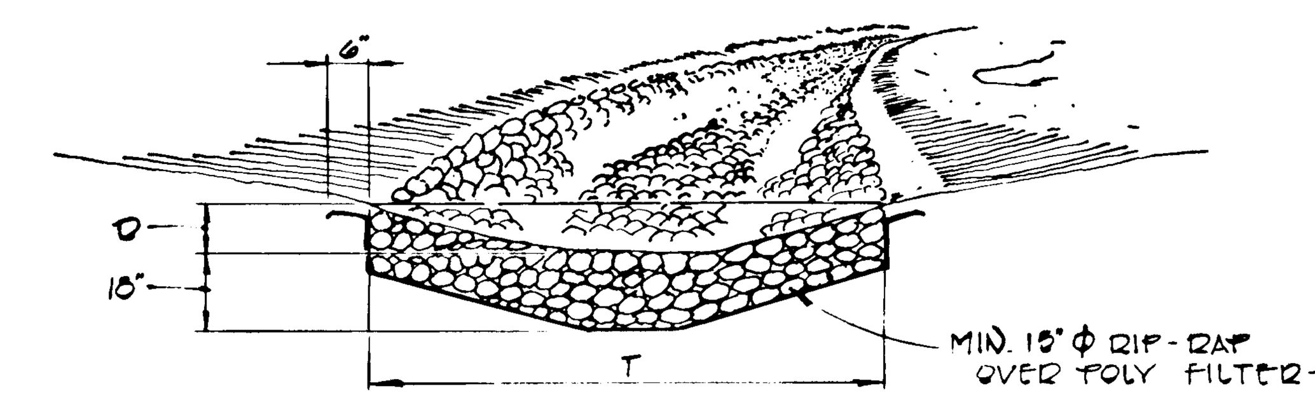
NOT TO SCALE



STORM WATER MANAGEMENT
POND PROFILE
SCALE : 1" = 20' HOR. 1" = 5' VERT.

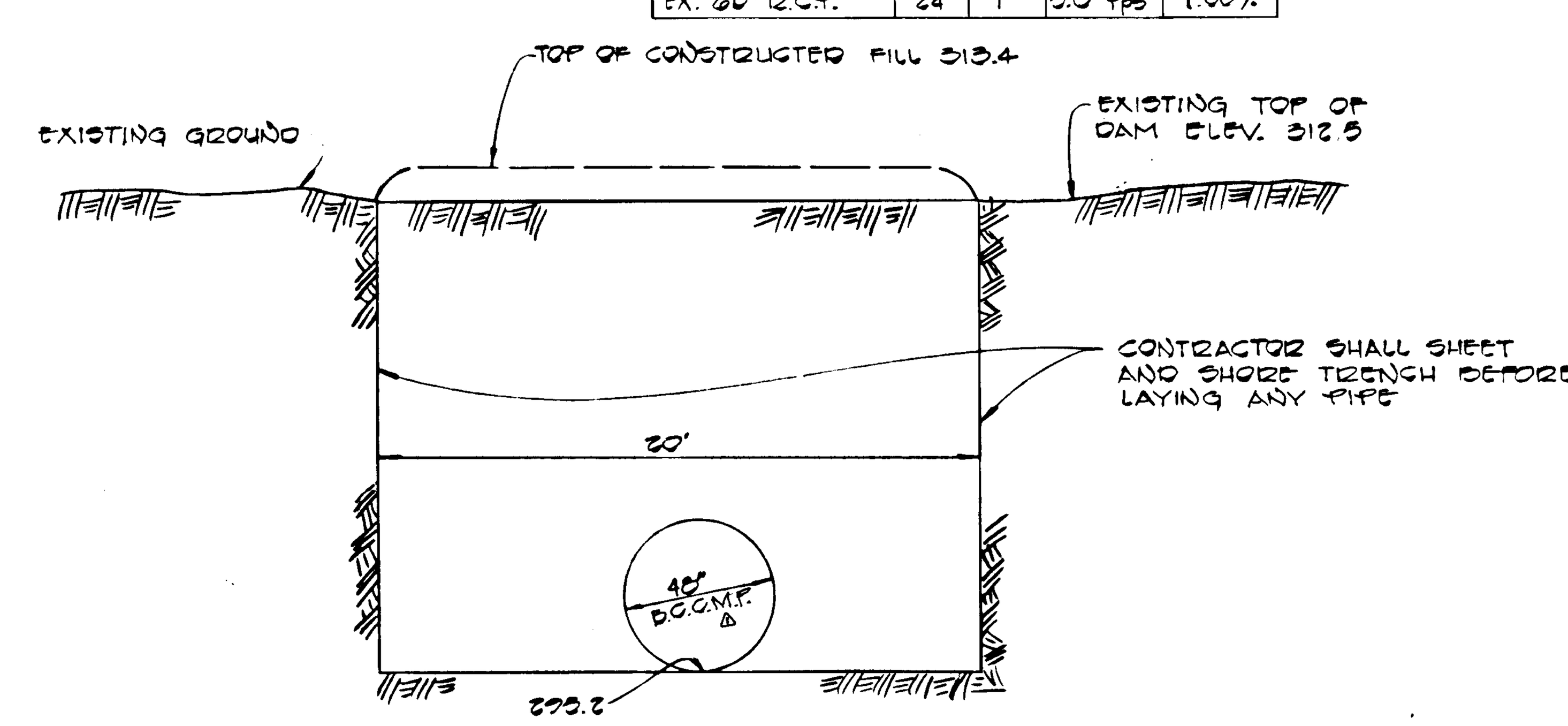
NOTE: 1) ALL PIPE JOINTS SHALL BE WATERTIGHT
2) THE 72" METAL PIPE RISER THAT WILL BE IN CONTACT WITH THE CONCRETE BASE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER

NOTE: FOR CONSTRUCTION DETAIL AND SPECIFICATIONS, SEE STANDARD DRAWING GW-1, U.S. DEPARTMENT OF AGRICULTURE STANDARDS AND SPECIFICATIONS FOR SOIL AND SEDIMENT CONTROL.



PARABOLIC RIP-RAP CHANNEL
NO SCALE

DESIGN POINT	T	D	V	SLOPE
S-1	11'	1.8'	4.0 fps	3.50%
EX. 60" R.C.P.	24'	1'	5.0 fps	1.00%



SECTION A-A
TRENCH DETAIL
NO SCALE

EARTH FILL
The fill material shall be free from roots, stumps, wood, rubbish, oversize stones, frozen or other objectionable materials. The embankment shall be constructed to an elevation which provides for anticipated settlement to the design elevation. The fill height all along the length of the embankment shall be increased at least 5 percent above the design elevation (including freeboard) unless otherwise shown on the plans.
Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in 8-inch maximum thickness (before compaction) layers which are to be continuous over the entire length of the fill. The most porous fill material shall be placed in the downstream portions of the embankment.
Compaction
95% of Standard Proctor by A.S.T.M. 698

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EARL COLLINS — DATE 5/28/82

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Rev. Date	Rev. No	Revision Description
8-10-83	⚠	ALUM. PIPE TO BIT. COATED METAL

COLUMBIA
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PROJECT AREA: PARCEL D-1
GUILFORD INDUSTRIAL PARK
E.G.U. SUBDIVISION

PROJECT TITLE: STORM WATER MANAGEMENT POND
DETAIL SHEET

Des. By C. CROVO	Scale AS SHOWN	Dwg. No. 2 OF 2
Drn. By A. BOGDAN	Date MARCH 10, 1982	C.C.F. No.
Chk. By R. CARTER	Approved	

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